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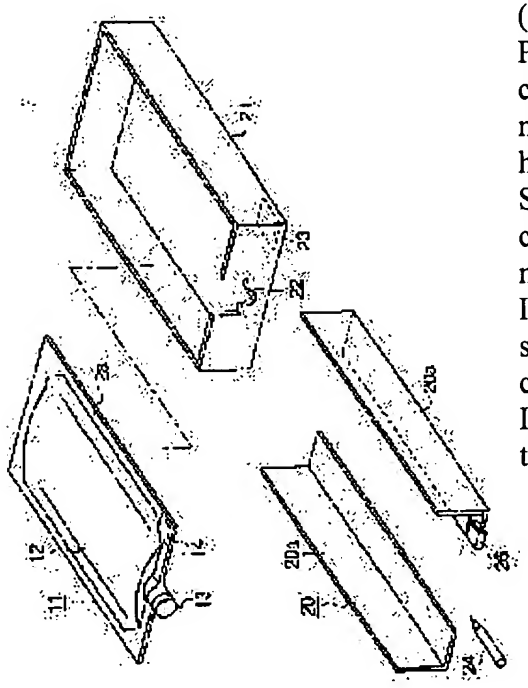
(54) INK CONTAINING BAG AND RECORDER HAVING THE SAME



(57)Abstract:

PROBLEM TO BE SOLVED: To provide an ink containing bag wherein a quantity of used ink can be managed by each ink containing bag and a recorder having the ink containing bag.

SOLUTION: A body 12 of the ink containing bag for containing the ink for printing is made of a flexible material to form a soft case. A non-contact type memory IC 14 is attached to a corner of the body 12 at the outer surface. A data communication section 26 for communicating data with the non-contact type memory IC 14 is provided to a case set section 20 of the recorder to which the ink containing bag 11 is set.

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CLAIMS

[Claim(s)]

[Claim 1] The ink hold bag characterized by forming the non-contact mold memory IC in the ink hold bag equipped with the flexible body of an ink hold bag which holds the ink for printing, and the ink feed hopper which supplies ink outside.

[Claim 2] The ink hold bag according to claim 1 characterized by forming said non-contact mold memory IC in the body of an ink hold bag.

[Claim 3] The ink hold bag according to claim 2 characterized by forming said non-contact mold memory IC in the corner of the body of an ink hold bag.

[Claim 4] The ink hold bag according to claim 3 characterized by forming said non-contact mold memory IC in the heat welding of said corner of the body of an ink hold bag.

[Claim 5] The ink hold bag according to claim 2 characterized by forming said non-contact mold memory IC in the center section of the body of an ink hold bag.

[Claim 6] The ink hold bag according to claim 2 characterized by forming said non-contact mold memory IC near [said] the ink feed hopper of the body of an ink hold bag.

[Claim 7] The recording device characterized by preparing the data delivery section which delivers data in the state of non-contact in the recording device which it is equipped with the flexible ink hold bag which holds ink, and prints in the ink in the ink hold bag between the non-contact mold memory IC prepared in said ink hold bag.

[Claim 8] Said data delivery section is the recording device according to claim 7 characterized by being constituted so that data may be delivered between the non-contact mold memory IC prepared in the body of an ink hold bag arranged at the downward condition.

[Claim 9] The recording device according to claim 7 characterized by having the cartridge case which holds said ink hold bag, and the case set section which holds this cartridge case.

[Claim 10] The recording device according to claim 7 characterized by preparing opening which enables the communication link with the non-contact mold memory IC prepared in said ink hold bag, and the data delivery section prepared in the body of equipment in said cartridge case.

[Claim 11] It is the recording device according to claim 7 which equips said cartridge case with the output port which fixes the ink feed hopper of said ink hold bag, and is characterized by arranging the non-contact mold memory IC of said ink hold bag near [said] the ink feed hopper.

[Claim 12] The recording device according to claim 7 characterized by judging ink consumption using the information on the non-contact mold memory IC of said ink hold bag.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention breathes out an ink droplet from a nozzle, and relates to recording devices, such as a printer equipped with the ink hold bag used for recording devices including the printer and such a print station of the ink jet type which prints in a record form, such as facsimile and a reproducing unit, and its ink hold bag.
[0002]
[Description of the Prior Art] What formed in saccate the sheet which has deformable flexibility in accordance with consumption of the ink held in the interior as an ink hold bag used for this kind of printer is used, and what gave identification marking to the outside surface of that ink hold bag is known. Attribute data, such as a class of ink, a color, and the date of manufacture, is memorized by said identification marking, where a printer is equipped with an ink hold bag, the attribute data of ink is read from identification marking by the reading section prepared in the printer, and printing actuation of a printer is controlled by it based on the data.
[0003]
[Problem(s) to be Solved by the Invention] However, in this conventional ink hold bag, on the other hand, the attribute data of ink is read from the identification marking given to the outside surface of an ink hold bag to a target, it is used for control of printing actuation, and management of the amount of the ink used of an ink hold bag is performed by the control section of a printer. And when a printer is equipped with an ink hold bag, the data containing the amount of the ink used memorized by the control section are cleared, new data are read from identification marking, and management of the amount of the ink used is also newly started. For this reason, there was a problem that the amount-used data of an ink hold bag are in a printer side, management of the amount of the ink used could not be continued, and it could not carry out when using it again, equipping a printer with that ink hold bag after being in the middle of use of ink and removing an ink hold bag from a printer. Moreover, to said identification marking, since a bar code is used, management data with it cannot be dealt with. [a small capacity and] [sufficient]
[0004] This invention is made paying attention to the trouble which exists in such a Prior art. The purpose is to offer the recording device equipped with the ink hold bag and it which can deal with sufficient management data while being able to manage the amount of the ink used for every ink hold bag.
[0005]
[Means for Solving the Problem] In order to attain the above-mentioned technical problem, in invention according to claim 1, it is characterized by forming the non-contact mold memory IC in the ink hold bag equipped with the flexible body of an ink hold bag which holds the ink for printing, and the ink feed hopper which supplies ink outside.
[0006] In invention according to claim 2, it is characterized by forming said non-contact mold memory IC in the body of an ink hold bag in invention according to claim 1.
[0007] Therefore, according to this claim 1 and invention according to claim 2, the amount of the ink used is manageable for every ink hold bag by writing an ink residue in the non-contact mold memory IC. And ink hold bag management data, such as the amount of the ink used, can be given to an ink hold bag. Therefore, when using it again, setting the ink hold bag to a printer

after being in the middle of use of ink and removing an ink hold bag from a printer, management of the amount of the ink used can be performed continuously.

[0008] Moreover, the appearance configuration changes so that thickness in a bag may become thin by consumption of the ink held in the case of a flexible ink hold bag, but since the memory IC of a non-contact mold is installed, read-out and the writing of exact data are attained by setting up suitably the communication link range of the non-contact memory IC and the data delivery section. Moreover, since the non-contact mold memory IC is not formed strictly in an above-mentioned case and fault hardly produces ** in read-out and the writing of data, either, the non-contact mold memory IC can be attached easily. Moreover, since it is a flexible hold bag, when all the ink held is used, ** of the ink hold bag can be made small, and can be discarded.

[0009] In invention according to claim 3, it is characterized by forming the non-contact mold memory IC in the corner of the body of an ink hold bag.

[0010] Therefore, according to this invention according to claim 3, the appearance deformation accompanying consumption of ink can hold the non-contact mold memory IC stably to the corner of few bodies of an ink hold bag, and can make the data delivery section by the side of a printer carry out contiguity correspondence with a flexible ink hold bag. Therefore, data can be correctly delivered in the state of non-contact between the non-contact mold memory IC and the data delivery section.

[0011] In invention according to claim 4, it is characterized by forming Memory IC in the heat welding of the corner of the body of an ink hold bag.

[0012] Therefore, stable maintenance is carried out, without that non-contact mold memory IC carrying out a rash act, since it is prepared in the heat welding to which the non-contact mold memory IC has rigidity in this claim 4 flatly as compared with other parts of the body of an ink hold bag according to invention. For this reason, delivery of data can be ensured.

[0013] In invention according to claim 5, it is characterized by forming said non-contact mold memory IC in the center section of the body of an ink hold bag.

[0014] Therefore, according to this invention according to claim 5, it can be concern with the swelling condition of an ink hold bag, and the data delivery section by the side of a printer can be make to always carry out contiguity correspondence of the non-contact mold memory IC by setting an ink hold bag in a recording device regardless of the operating condition of the ink in an ink hold bag that is, that there be nothing so that the center section of the body of an ink hold bag in which the non-contact mold memory IC be formed may serve as the bottom. Therefore, data can be correctly delivered in the state of non-contact between the non-contact mold memory IC and the data delivery section.

[0015] In invention according to claim 6, it is characterized by forming the non-contact mold memory IC near the ink feed hopper of the body of an ink hold bag.

[0016] Therefore, according to invention according to claim 6, by arranging the non-contact mold memory IC near the feed hopper fixed to the body of equipment, stable maintenance will be carried out more and data can be correctly delivered in the state of non-contact.

[0017] In invention according to claim 7, it is equipped with the flexible ink hold bag which holds ink, and is characterized by preparing the data delivery section which delivers data in the state of non-contact between the non-contact mold memory IC prepared in said ink hold bag in the recording device which prints in the ink in the ink hold bag.

[0018] Therefore, according to this invention according to claim 7, an ink hold bag is set in a recording apparatus, in the condition of having made the data delivery section carrying out

contiguity correspondence of the non-contact mold memory IC, data can be delivered between the non-contact mold memory IC and the data delivery section, and control of printing actuation, management of the amount of the ink used, etc. can be performed effectively.
[0019] In invention according to claim 8, said data delivery section is characterized by being constituted so that data may be delivered between the non-contact mold memory IC arranged at the downward condition in invention according to claim 7.
[0020] Therefore, according to invention according to claim 8, where an ink hold bag is installed so that the non-contact mold memory IC may become downward, delivery of data is performed between the non-contact mold memory IC and the data delivery section. For this reason, the weight of an ink hold bag acts on the non-contact mold memory IC, the non-contact mold memory IC is held at a stable state, and delivery of data is performed between the non-contact mold memory IC of that condition, and the data delivery section. For this reason, delivery of data can be ensured.
[0021] In invention according to claim 9, it is characterized by having the cartridge case which holds said ink hold bag, and the case set section which holds this cartridge case.
[0022] Therefore, the body of a recording apparatus can be correctly equipped with an ink hold bag through a cartridge case, and data delivery with the non-contact mold memory IC and the data delivery section can be performed correctly.
[0023] In invention according to claim 10, it is characterized by preparing opening which enables the communication link with the non-contact mold memory IC prepared in said ink hold bag, and the data delivery section prepared in the body of equipment in said cartridge case.
[0024] Therefore, it becomes possible to carry out correctly, without intercepting data delivery with the non-contact mold memory IC and the data delivery section with a cartridge case. Moreover, it is employable even if communication capability is low equipment (the non-contact mold memory IC or data delivery section).
[0025] In invention according to claim 11, said cartridge case is equipped with the output port which fixes the ink feed hopper of said ink hold bag, and it is characterized by arranging the non-contact mold memory IC of said ink hold bag near [said] the ink feed hopper.
[0026] Therefore, the non-contact mold memory IC can be held more stably.
[0027] In invention according to claim 12, it is characterized by judging the amount of ink using the information on the non-contact mold memory IC of said ink hold bag. Therefore, it enables a recording device to judge with the exact amount of ink.
[0028]
[Embodiment of the Invention] (The 1st operation gestalt) Below, the 1 1st operation gestalt of this invention is explained based on drawing 1 - drawing 4 .
[0029] First, the ink hold bag of this operation gestalt and the recording device using it are explained. As shown in drawing 1 - drawing 3 , in web materials, such as a laminate film with the gas barrier property which the body 12 of an ink hold bag of the ink hold bag 11 consists of a software case which formed in saccate the sheet which has flexibility, for example, comes to vapor-deposit aluminum to a polyethylene film, a heat joining seal is given along two-sheet superposition and the periphery edge of the piled-up web material, and the ink for printing is held in the interior. Heat joining of the ink feed hopper 13 which consists of hard material, such as synthetic resin, is carried out to the end edge of the body 12 of an ink hold bag, and the ink within the body 12 of an ink hold bag is taken out from this ink feed hopper 13.
[0030] In the heat joining seal section 12a top as a heat welding in the periphery edge of said body 12 of an ink hold bag, the non-contact mold memory IC 14 in which read-out and writing

are possible is being fixed to this heat joining seal section 12a of the end corner of the ink feed hopper 13 side-edge edge in the bottom front face of the body 12 of an ink hold bag from the exterior. Data, such as a class of the attribute data about the ink in the ink hold bag 11, for example, ink, a color, the date of manufacture, and a plant, are memorized by this non-contact mold memory IC 14. Furthermore, the storage region for writing in the amount of existing [used] and residue of ink in the ink hold bag 11 is established in the non-contact mold memory IC 14.
[0031] Next, the printer (recording device) which equips with and uses said ink hold bag 11 is explained.
[0032] As shown in drawing 1 and drawing 2 , along with the platen which a print head 19 does not illustrate, it is arranged movable by the body 18 of a printer. In the front face of 1 side of the body 18 of a printer, partition formation of two or more case set sections 20 is carried out, and a pair each guide plate 20a is prepared in those case set sections 20. And the ink hold bag 11 is set to each case set section 20 in the condition of having held in the cartridge case 21.
[0033] Said cartridge case 21 is formed in the shape of a hard case. Output port 22 is formed in the end side of a cartridge case 21, and the ink feed hopper 13 of the ink hold bag 11 held in the cartridge case 21 is being fixed to output port 22 so that it may project outside from this output port 22. The window part 23 is formed in the 1 side base by the side of the output port 22 of a cartridge case 21. And when the ink hold bag 11 is held in a cartridge case 21, the non-contact mold memory IC 14 prepared in the end corner on the front face of the bottom of that ink hold bag 11 is exposed to a lower part from this window part 23.
[0034] Opposite arrangement of the supply needle 24 is carried out at each case set section 20 of said body 18 of a printer, and it connects with the print head 19 through the supply tube 25. And where the ink hold bag 11 is held in a cartridge case 21, when it is set to the case set section 20, the supply needle 24 penetrates the ink feed hopper 13 of the ink hold bag 11, and is inserted into the body 12 of an ink hold bag. In this condition, with printing actuation of a print head 19, the ink in the ink hold bag 11 is supplied to a print head 19 through the supply needle 24 and the supply tube 25, and printing is performed on the record form P.
[0035] The data delivery section 26 is arranged in the edge of one guide plate 20a of each of said case set section 20. And where the ink hold bag 11 is held in a cartridge case 21, when it is set to the case set section 20, opposite arrangement of the non-contact mold memory IC 14 arranged in the end corner near the ink feed hopper of the ink hold bag 11 is carried out through a window part 23 at the data delivery section 26. In this condition, writing is performed in the reading list about the attribute data of the ink in the ink hold bag 11, and the data of the amount of existing [used], or a residue by the data delivery section 26 in the state of non-contact to the non-contact mold memory IC 14.
[0036] Next, the circuitry of the printer which consists of the above structures is explained. As shown in drawing 4 , the central processing unit (CPU) 30 which controls actuation of the whole printer is formed in the body 18 of a printer, and the random access memory (RAM) 32 which stores the read-only memory (ROM) 31 which stored the program, working data, etc. is connected to the CPU30. The printing mechanism 33 containing said print head 19 is connected to CPU30, and an active signal is outputted to this printing mechanism 33. Moreover, the data delivery section 26 is connected to CPU30, and I/O of the attribute data of ink etc. is performed to this data delivery section 26.
[0037] Furthermore, the external computer 35 is connected to CPU30 within said body 18 of a printer through an interface 34, and delivery of print data, an alarm display signal, etc. is performed to it between this computer 35. When the displays 36, such as a display unit, are

connected to a computer 35 and an alarm display signal is outputted to a computer 35 from CPU30, a warning message is displayed on this display 36. A keyboard 37 is connected to a computer 35 and various data are inputted from this keyboard 37.
[0038] Next, actuation of the printer constituted as mentioned above is explained.
[0039] Now, in equipping this printer with the ink hold bag 11, where the ink hold bag 11 is held in a cartridge case 21, it sets to the case set section 20 of the body 18 of a printer. Then, while the supply needle 24 penetrates to the ink feed hopper 13 of the ink hold bag 11 and insertion arrangement is carried out into the body 12 of an ink hold bag, opposite arrangement of the non-contact mold memory IC 14 on the front face of the bottom of the ink hold bag 11 is carried out through a window part 23 at the data delivery section 26 by the side of the body 18 of a printer.
[0040] In this condition, the attribute data of the ink in the ink hold bag 11 etc. is read from the non-contact mold memory IC 14 by the data delivery section 26, and it is written in RAM32 through CPU30. And while printing actuation of the printing mechanism 33 containing a print head 19 is carried out based on the attribute data of this ink etc., the ink in the ink hold bag 11 is supplied to a print head 19 through the supply needle 24 and the supply tube 25, and printing is performed in the record form P.
[0041] At the time of this printing actuation, the data of the amount of existing [used] of ink and a residue are written in RAM32 by the data delivery section 26 based on control of CPU30. And the data is transmitted to the non-contact mold memory IC 14 to periodical or predetermined printing actuation timing. And when the amount of the addition used of the ink written in the non-contact mold memory IC 14 reached a predetermined value, the alarm display signal to which exchange of the ink hold bag 11 is urged from CPU30 was outputted, and the ink for example, in "ink hold bag was lost to the display 36. A warning message, such as please exchange for a new thing", is displayed.
[0042] Moreover, it is in the middle of use of the ink in the ink hold bag 11, and even when printing actuation is completed, the data of the amount of existing [used] of the ink consumed in the printing actuation till then and a residue are written in the non-contact mold memory IC 14 on the ink hold bag 11. Therefore, it will be carried out by management of the amount of the ink used continuing by removing the ink hold bag 11 from a printer in this condition, and transmitting these data to a printer, even when it is used for other printers, having set to them again.
[0043] Therefore, according to this operation gestalt, the following effectiveness can be acquired.
[0044] (1) In this ink hold bag 11, the non-contact mold memory IC 14 is formed in the outside surface of the flexible ink hold bag 11 which holds the ink for printing. For this reason, the amount of the ink used is manageable every ink hold bag 11 by writing an ink residue in the non-contact mold memory IC 14. Therefore, when using it again, setting the ink hold bag 11 to a printer after being in the middle of use of ink and removing the ink hold bag 11 from a printer, management of the amount of the ink used can be performed continuously. Moreover, the appearance configuration changes so that the thickness of the whole bag may become thin by consumption of the ink held in the case of a flexible ink hold bag, but since the memory IC of a non-contact mold is installed, read-out and the writing of exact data are attained by setting up suitably the communication link range of the non-contact mold memory IC and the data delivery section. Moreover, since the non-contact mold memory IC is not formed strictly in an above-mentioned case and fault hardly produces ** in read-out and the writing of data, either, the non-contact mold memory IC can be attached easily. Moreover, since it is a flexible hold bag, when

all the ink held is used, ** of the ink hold bag can be made small, and can be discarded.
[0045] (2) In this ink hold bag 11, said non-contact mold memory IC 14 is formed in the corner of the body 12 of an ink hold bag. For this reason, since there is little formation of an appearance form status change by ink consumption in the corner of a flexible bag, it becomes possible to use the equipment whose communication link range of the non-contact mold memory IC and the data delivery section is not large. Moreover, stable maintenance of the non-contact mold memory IC 14 prepared in this corner since it will be in a hard condition from the part of everything [heat joining seal section 12a is formed in the periphery edge of the body 12 of an ink hold bag, and / corner / of the body 12 of an ink hold bag] but the body of an ink hold bag and rigidity was high can be carried out, and the data delivery section 26 by the side of a printer can be made to always carry out contiguity correspondence. Therefore, since it can counter in the location by which the non-contact mold memory IC 14 was mostly stabilized to the data delivery section 26, data can be more correctly delivered in the state of non-contact.
[0046] (3) In the printer equipped with this ink hold bag 11, the ink hold bag 11 which holds ink is set, and it is constituted so that it may print in the ink in that ink hold bag 11. And the data delivery section 26 which delivers data in the state of non-contact is formed between the non-contact mold memory IC 14 prepared in the outside surface of the ink hold bag 11. For this reason, the ink hold bag 11 is set to a printer, in the condition of having made the data delivery section 26 carrying out contiguity correspondence of the non-contact mold memory IC 14, data can be delivered between the non-contact mold memory IC 14 and the data delivery section 26, and control of printing actuation, management of the amount of the ink used, etc. can be performed effectively.
[0047] (4) In this printer, the data delivery section 26 is constituted so that data may be delivered between the non-contact mold memory IC 14 arranged at the downward condition. For this reason, where the ink hold bag 11 is installed so that the non-contact mold memory IC 14 may become downward, delivery of data is performed between the non-contact mold memory IC 14 and the data delivery section 26. For this reason, the weight of the ink hold bag 11 acts on the non-contact mold memory IC 14, the non-contact mold memory IC 14 is held at a stable state, and delivery of data is performed between the non-contact mold memory IC 14 of that condition, and the data delivery section. For this reason, delivery of data can be ensured.
[0048] (The 2nd operation gestalt) Next, the 2nd operation gestalt of this invention is explained focusing on a different part from said 1st operation gestalt.
[0049] Now, in this 2nd operation gestalt, as shown in drawing 5 , the non-contact mold memory IC 14 is formed in the center section on the front face of the bottom of the body 12 of an ink hold bag by attachment.
[0050] On the other hand, the data delivery section 26 of a printer is formed in the center section of the cartridge case 21. And when the ink hold bag 11 is set to the case set section 20 of a printer in the condition of having held in the cartridge case 21, opposite arrangement of this non-contact mold memory IC 14 is carried out at the data delivery section 26 arranged among both guide plate 20a of the case set section 20.
[0051] Therefore, according to this 2nd operation gestalt, in addition to the effectiveness of a publication, the following effectiveness can be acquired to (1) in said 1st operation gestalt, (3), and (4).
[0052] (5) In this ink hold bag 11, the non-contact mold memory IC 14 is formed in the center section of the outside surface of the body 12 of an ink hold bag. For this reason, the data delivery section 26 by the side of a printer can be made to always carry out contiguity correspondence of

the non-contact mold memory IC 14 at the predetermined spacing by setting the ink hold bag 11 to a printer regardless of change of the operating condition of the ink in the ink hold bag 11, i.e., the swelling condition of the ink hold bag 11, so that the center section of the body 12 of an ink hold bag in which the non-contact mold memory IC 14 was formed may serve as the bottom. Therefore, it becomes possible to use, even if it can deliver data correctly in the state of non-contact and the communication link range of non-contact mold memory and the data delivery section is narrow equipment between the non-contact mold memory IC 14 and the data delivery section 26.

[0053] In addition, it is not limited to the location illustrated that the center section of the bottom outside surface of the ink hold bag in an above-mentioned example should just be a location with little change of the appearance configuration of the ink hold bag accompanying the ink consumption in an ink hold bag.

[0054] (Example of modification) A still more nearly above-mentioned operation gestalt can also be changed as follows.

[0055] In said 1st operation gestalt, the arrangement part of the non-contact mold memory IC 14 may be changed into the other end corner of the ink feed hopper 13 side-edge edge in the bottom front face of the ink hold bag 11, the end corner of the ink feed hopper 13 and the opposite side edge, or an other end corner. Moreover, you may prepare in the corner on the front face of a top of the ink hold bag 11.

[0056] Thus, even when constituted, the almost same effectiveness as said operation gestalt can be acquired.

[0057]

[Effect of the Invention] As mentioned above, as explained in full detail, while being able to perform the management data of the amount of the ink used for every ink hold bag, the management data can be given to an ink hold bag, and sufficient management data can be dealt with.

TECHNICAL FIELD

[Field of the Invention] This invention breathes out an ink droplet from a nozzle, and relates to recording devices, such as a printer equipped with the ink hold bag used for recording devices including the printer and such a print station of the ink jet type which prints in a record form, such as facsimile and a reproducing unit, and its ink hold bag.

PRIOR ART

[Description of the Prior Art] What formed in saccate the sheet which has deformable flexibility in accordance with consumption of the ink held in the interior as an ink hold bag used for this kind of printer is used, and what gave identification marking to the outside surface of that ink hold bag is known. Attribute data, such as a class of ink, a color, and the date of manufacture, is memorized by said identification marking, where a printer is equipped with an ink hold bag, the attribute data of ink is read from identification marking by the reading section prepared in the printer, and printing actuation of a printer is controlled by it based on the data.

EFFECT OF THE INVENTION

[Effect of the Invention] As mentioned above, as explained in full detail, while being able to perform the management data of the amount of the ink used for every ink hold bag, the management data can be given to an ink hold bag, and sufficient management data can be dealt with.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, in this conventional ink hold bag, on the other hand, the attribute data of ink is read from the identification marking given to the outside surface of an ink hold bag to a target, it is used for control of printing actuation, and management of the amount of the ink used of an ink hold bag is performed by the control section of a printer. And when a printer is equipped with an ink hold bag, the data containing the amount of the ink used memorized by the control section are cleared, new data are read from identification marking, and management of the amount of the ink used is also newly started. For this reason, there was a problem that the amount-used data of an ink hold bag are in a printer side, management of the amount of the ink used could not be continued, and it could not carry out when using it again, equipping a printer with that ink hold bag after being in the middle of use of ink and removing an ink hold bag from a printer. Moreover, to said identification marking, since a bar code is used, management data with it cannot be dealt with. [a small capacity and] [sufficient]

[0004] This invention is made paying attention to the trouble which exists in such a Prior art. The purpose is to offer the recording device equipped with the ink hold bag and it which can deal with sufficient management data while being able to manage the amount of the ink used for every ink hold bag.

MEANS

[Means for Solving the Problem] In order to attain the above-mentioned technical problem, in invention according to claim 1, it is characterized by forming the non-contact mold memory IC in the ink hold bag equipped with the flexible body of an ink hold bag which holds the ink for printing, and the ink feed hopper which supplies ink outside.

[0006] In invention according to claim 2, it is characterized by forming said non-contact mold memory IC in the body of an ink hold bag in invention according to claim 1.

[0007] Therefore, according to this claim 1 and invention according to claim 2, the amount of the ink used is manageable for every ink hold bag by writing an ink residue in the non-contact mold memory IC. And ink hold bag management data, such as the amount of the ink used, can be given to an ink hold bag. Therefore, when using it again, setting the ink hold bag to a printer after being in the middle of use of ink and removing an ink hold bag from a printer, management of the amount of the ink used can be performed continuously.

[0008] Moreover, the appearance configuration changes so that thickness in a bag may become thin by consumption of the ink held in the case of a flexible ink hold bag, but since the memory IC of a non-contact mold is installed, read-out and the writing of exact data are attained by setting up suitably the communication link range of the non-contact memory IC and the data delivery section. Moreover, since the non-contact mold memory IC is not formed strictly in an above-mentioned case and fault hardly produces ** in read-out and the writing of data, either, the non-contact mold memory IC can be attached easily. Moreover, since it is a flexible hold bag, when all the ink held is used, ** of the ink hold bag can be made small, and can be discarded.

[0009] In invention according to claim 3, it is characterized by forming the non-contact mold memory IC in the corner of the body of an ink hold bag.

[0010] Therefore, according to this invention according to claim 3, the appearance deformation accompanying consumption of ink can hold the non-contact mold memory IC stably to the corner of few bodies of an ink hold bag, and can make the data delivery section by the side of a printer carry out contiguity correspondence with a flexible ink hold bag. Therefore, data can be correctly delivered in the state of non-contact between the non-contact mold memory IC and the data delivery section.

[0011] In invention according to claim 4, it is characterized by forming Memory IC in the heat welding of the corner of the body of an ink hold bag.

[0012] Therefore, stable maintenance is carried out, without that non-contact mold memory IC carrying out a rash act, since it is prepared in the heat welding to which the non-contact mold memory IC has rigidity in this claim 4 flatly as compared with other parts of the body of an ink hold bag according to invention. For this reason, delivery of data can be ensured.

[0013] In invention according to claim 5, it is characterized by forming said non-contact mold memory IC in the center section of the body of an ink hold bag.

[0014] Therefore, according to this invention according to claim 5, it can be concern with the swelling condition of an ink hold bag, and the data delivery section by the side of a printer can be make to always carry out contiguity correspondence of the non-contact mold memory IC by setting an ink hold bag in a recording device regardless of the operating condition of the ink in an ink hold bag that is, that there be nothing so that the center section of the body of an ink hold bag in which the non-contact mold memory IC be formed may serve as the bottom. Therefore, data can be correctly delivered in the state of non-contact between the non-contact mold memory IC and the data delivery section.

[0015] In invention according to claim 6, it is characterized by forming the non-contact mold memory IC near the ink feed hopper of the body of an ink hold bag.

[0016] Therefore, according to invention according to claim 6, by arranging the non-contact mold memory IC near the feed hopper fixed to the body of equipment, stable maintenance will be carried out more and data can be correctly delivered in the state of non-contact.

[0017] In invention according to claim 7, it is equipped with the flexible ink hold bag which holds ink, and is characterized by preparing the data delivery section which delivers data in the state of non-contact between the non-contact mold memory IC prepared in said ink hold bag in the recording device which prints in the ink in the ink hold bag.

[0018] Therefore, according to this invention according to claim 7, an ink hold bag is set in a recording apparatus, in the condition of having made the data delivery section carrying out contiguity correspondence of the non-contact mold memory IC, data can be delivered between the non-contact mold memory IC and the data delivery section, and control of printing actuation,

management of the amount of the ink used, etc. can be performed effectively.
[0019] In invention according to claim 8, said data delivery section is characterized by being constituted so that data may be delivered between the non-contact mold memory IC arranged at the downward condition in invention according to claim 7.
[0020] Therefore, according to invention according to claim 8, where an ink hold bag is installed so that the non-contact mold memory IC may become downward, delivery of data is performed between the non-contact mold memory IC and the data delivery section. For this reason, the weight of an ink hold bag acts on the non-contact mold memory IC, the non-contact mold memory IC is held at a stable state, and delivery of data is performed between the non-contact mold memory IC of that condition, and the data delivery section. For this reason, delivery of data can be ensured.
[0021] In invention according to claim 9, it is characterized by having the cartridge case which holds said ink hold bag, and the case set section which holds this cartridge case.
[0022] Therefore, the body of a recording apparatus can be correctly equipped with an ink hold bag through a cartridge case, and data delivery with the non-contact mold memory IC and the data delivery section can be performed correctly.
[0023] In invention according to claim 10, it is characterized by preparing opening which enables the communication link with the non-contact mold memory IC prepared in said ink hold bag, and the data delivery section prepared in the body of equipment in said cartridge case.
[0024] Therefore, it becomes possible to carry out correctly, without intercepting data delivery with the non-contact mold memory IC and the data delivery section with a cartridge case. Moreover, it is employable even if communication capability is low equipment (the non-contact mold memory IC or data delivery section).
[0025] In invention according to claim 11, said cartridge case is equipped with the output port which fixes the ink feed hopper of said ink hold bag, and it is characterized by arranging the non-contact mold memory IC of said ink hold bag near [said] the ink feed hopper.
[0026] Therefore, the non-contact mold memory IC can be held more stably.
[0027] In invention according to claim 12, it is characterized by judging the amount of ink using the information on the non-contact mold memory IC of said ink hold bag. Therefore, it enables a recording device to judge with the exact amount of ink.
[0028]
[Embodiment of the Invention] (The 1st operation gestalt) Below, the 1 1st operation gestalt of this invention is explained based on drawing 1 - drawing 4 .
[0029] First, the ink hold bag of this operation gestalt and the recording device using it are explained. As shown in drawing 1 - drawing 3 , in web materials, such as a laminate film with the gas barrier property which the body 12 of an ink hold bag of the ink hold bag 11 consists of a software case which formed in saccate the sheet which has flexibility, for example, comes to vapor-deposit aluminum to a polyethylene film, a heat joining seal is given along two-sheet superposition and the periphery edge of the piled-up web material, and the ink for printing is held in the interior. Heat joining of the ink feed hopper 13 which consists of hard material, such as synthetic resin, is carried out to the end edge of the body 12 of an ink hold bag, and the ink within the body 12 of an ink hold bag is taken out from this ink feed hopper 13.
[0030] In the heat joining seal section 12a top as a heat welding in the periphery edge of said body 12 of an ink hold bag, the non-contact mold memory IC 14 in which read-out and writing are possible is being fixed to this heat joining seal section 12a of the end corner of the ink feed hopper 13 side-edge edge in the bottom front face of the body 12 of an ink hold bag from the

exterior. Data, such as a class of the attribute data about the ink in the ink hold bag 11, for example, ink, a color, the date of manufacture, and a plant, are memorized by this non-contact mold memory IC 14. Furthermore, the storage region for writing in the amount of existing [used] and residue of ink in the ink hold bag 11 is established in the non-contact mold memory IC 14.
[0031] Next, the printer (recording device) which equips with and uses said ink hold bag 11 is explained.
[0032] As shown in drawing 1 and drawing 2 , along with the platen which a print head 19 does not illustrate, it is arranged movable by the body 18 of a printer. In the front face of 1 side of the body 18 of a printer, partition formation of two or more case set sections 20 is carried out, and a pair each guide plate 20a is prepared in those case set sections 20. And the ink hold bag 11 is set to each case set section 20 in the condition of having held in the cartridge case 21.
[0033] Said cartridge case 21 is formed in the shape of a hard case. Output port 22 is formed in the end side of a cartridge case 21, and the ink feed hopper 13 of the ink hold bag 11 held in the cartridge case 21 is being fixed to output port 22 so that it may project outside from this output port 22. The window part 23 is formed in the 1 side base by the side of the output port 22 of a cartridge case 21. And when the ink hold bag 11 is held in a cartridge case 21, the non-contact mold memory IC 14 prepared in the end corner on the front face of the bottom of that ink hold bag 11 is exposed to a lower part from this window part 23.
[0034] Opposite arrangement of the supply needle 24 is carried out at each case set section 20 of said body 18 of a printer, and it connects with the print head 19 through the supply tube 25. And where the ink hold bag 11 is held in a cartridge case 21, when it is set to the case set section 20, the supply needle 24 penetrates the ink feed hopper 13 of the ink hold bag 11, and is inserted into the body 12 of an ink hold bag. In this condition, with printing actuation of a print head 19, the ink in the ink hold bag 11 is supplied to a print head 19 through the supply needle 24 and the supply tube 25, and printing is performed on the record form P.
[0035] The data delivery section 26 is arranged in the edge of one guide plate 20a of each of said case set section 20. And where the ink hold bag 11 is held in a cartridge case 21, when it is set to the case set section 20, opposite arrangement of the non-contact mold memory IC 14 arranged in the end corner near the ink feed hopper of the ink hold bag 11 is carried out through a window part 23 at the data delivery section 26. In this condition, writing is performed in the reading list about the attribute data of the ink in the ink hold bag 11, and the data of the amount of existing [used], or a residue by the data delivery section 26 in the state of non-contact to the non-contact mold memory IC 14.
[0036] Next, the circuitry of the printer which consists of the above structures is explained. As shown in drawing 4 , the central processing unit (CPU) 30 which controls actuation of the whole printer is formed in the body 18 of a printer, and the random access memory (RAM) 32 which stores the read-only memory (ROM) 31 which stored the program, working data, etc. is connected to the CPU30. The printing mechanism 33 containing said print head 19 is connected to CPU30, and an active signal is outputted to this printing mechanism 33. Moreover, the data delivery section 26 is connected to CPU30, and I/O of the attribute data of ink etc. is performed to this data delivery section 26.
[0037] Furthermore, the external computer 35 is connected to CPU30 within said body 18 of a printer through an interface 34, and delivery of print data, an alarm display signal, etc. is performed to it between this computer 35. When the displays 36, such as a display unit, are connected to a computer 35 and an alarm display signal is outputted to a computer 35 from CPU30, a warning message is displayed on this display 36. A keyboard 37 is connected to a

computer 35 and various data are inputted from this keyboard 37.
[0038] Next, actuation of the printer constituted as mentioned above is explained.
[0039] Now, in equipping this printer with the ink hold bag 11, where the ink hold bag 11 is held in a cartridge case 21, it sets to the case set section 20 of the body 18 of a printer. Then, while the supply needle 24 penetrates to the ink feed hopper 13 of the ink hold bag 11 and insertion arrangement is carried out into the body 12 of an ink hold bag, opposite arrangement of the non-contact mold memory IC 14 on the front face of the bottom of the ink hold bag 11 is carried out through a window part 23 at the data delivery section 26 by the side of the body 18 of a printer.
[0040] In this condition, the attribute data of the ink in the ink hold bag 11 etc. is read from the non-contact mold memory IC 14 by the data delivery section 26, and it is written in RAM32 through CPU30. And while printing actuation of the printing mechanism 33 containing a print head 19 is carried out based on the attribute data of this ink etc., the ink in the ink hold bag 11 is supplied to a print head 19 through the supply needle 24 and the supply tube 25, and printing is performed in the record form P.
[0041] At the time of this printing actuation, the data of the amount of existing [used] of ink and a residue are written in RAM32 by the data delivery section 26 based on control of CPU30. And the data is transmitted to the non-contact mold memory IC 14 to periodical or predetermined printing actuation timing. And when the amount of the addition used of the ink written in the non-contact mold memory IC 14 reached a predetermined value, the alarm display signal to which exchange of the ink hold bag 11 is urged from CPU30 was outputted, and the ink for example, in "ink hold bag was lost to the display 36. A warning message, such as please exchange for a new thing", is displayed.
[0042] Moreover, it is in the middle of use of the ink in the ink hold bag 11, and even when printing actuation is completed, the data of the amount of existing [used] of the ink consumed in the printing actuation till then and a residue are written in the non-contact mold memory IC 14 on the ink hold bag 11. Therefore, it will be carried out by management of the amount of the ink used continuing by removing the ink hold bag 11 from a printer in this condition, and transmitting these data to a printer, even when it is used for other printers, having set to them again.
[0043] Therefore, according to this operation gestalt, the following effectiveness can be acquired.
[0044] (1) In this ink hold bag 11, the non-contact mold memory IC 14 is formed in the outside surface of the flexible ink hold bag 11 which holds the ink for printing. For this reason, the amount of the ink used is manageable every ink hold bag 11 by writing an ink residue in the non-contact mold memory IC 14. Therefore, when using it again, setting the ink hold bag 11 to a printer after being in the middle of use of ink and removing the ink hold bag 11 from a printer, management of the amount of the ink used can be performed continuously. Moreover, the appearance configuration changes so that the thickness of the whole bag may become thin by consumption of the ink held in the case of a flexible ink hold bag, but since the memory IC of a non-contact mold is installed, read-out and the writing of exact data are attained by setting up suitably the communication link range of the non-contact mold memory IC and the data delivery section. Moreover, since the non-contact mold memory IC is not formed strictly in an above-mentioned case and fault hardly produces ** in read-out and the writing of data, either, the non-contact mold memory IC can be attached easily. Moreover, since it is a flexible hold bag, when all the ink held is used, ** of the ink hold bag can be made small, and can be discarded.
[0045] (2) In this ink hold bag 11, said non-contact mold memory IC 14 is formed in the corner

of the body 12 of an ink hold bag. For this reason, since there is little formation of an appearance form status change by ink consumption in the corner of a flexible bag, it becomes possible to use the equipment whose communication link range of the non-contact mold memory IC and the data delivery section is not large. Moreover, stable maintenance of the non-contact mold memory IC 14 prepared in this corner since it will be in a hard condition from the part of everything [heat joining seal section 12a is formed in the periphery edge of the body 12 of an ink hold bag, and / corner / of the body 12 of an ink hold bag] but the body of an ink hold bag and rigidity was high can be carried out, and the data delivery section 26 by the side of a printer can be made to always carry out contiguity correspondence. Therefore, since it can counter in the location by which the non-contact mold memory IC 14 was mostly stabilized to the data delivery section 26, data can be more correctly delivered in the state of non-contact.

[0046] (3) In the printer equipped with this ink hold bag 11, the ink hold bag 11 which holds ink is set, and it is constituted so that it may print in the ink in that ink hold bag 11. And the data delivery section 26 which delivers data in the state of non-contact is formed between the non-contact mold memory IC 14 prepared in the outside surface of the ink hold bag 11. For this reason, the ink hold bag 11 is set to a printer, in the condition of having made the data delivery section 26 carrying out contiguity correspondence of the non-contact mold memory IC 14, data can be delivered between the non-contact mold memory IC 14 and the data delivery section 26, and control of printing actuation, management of the amount of the ink used, etc. can be performed effectively.

[0047] (4) In this printer, the data delivery section 26 is constituted so that data may be delivered between the non-contact mold memory IC 14 arranged at the downward condition. For this reason, where the ink hold bag 11 is installed so that the non-contact mold memory IC 14 may become downward, delivery of data is performed between the non-contact mold memory IC 14 and the data delivery section 26. For this reason, the weight of the ink hold bag 11 acts on the non-contact mold memory IC 14, the non-contact mold memory IC 14 is held at a stable state, and delivery of data is performed between the non-contact mold memory IC 14 of that condition, and the data delivery section. For this reason, delivery of data can be ensured.

[0048] (The 2nd operation gestalt) Next, the 2nd operation gestalt of this invention is explained focusing on a different part from said 1st operation gestalt.

[0049] Now, in this 2nd operation gestalt, as shown in drawing 5 , the non-contact mold memory IC 14 is formed in the center section on the front face of the bottom of the body 12 of an ink hold bag by attachment.

[0050] On the other hand, the data delivery section 26 of a printer is formed in the center section of the cartridge case 21. And when the ink hold bag 11 is set to the case set section 20 of a printer in the condition of having held in the cartridge case 21, opposite arrangement of this non-contact mold memory IC 14 is carried out at the data delivery section 26 arranged among both guide plate 20a of the case set section 20.

[0051] Therefore, according to this 2nd operation gestalt, in addition to the effectiveness of a publication, the following effectiveness can be acquired to (1) in said 1st operation gestalt, (3), and (4).

[0052] (5) In this ink hold bag 11, the non-contact mold memory IC 14 is formed in the center section of the outside surface of the body 12 of an ink hold bag. For this reason, the data delivery section 26 by the side of a printer can be made to always carry out contiguity correspondence of the non-contact mold memory IC 14 at the predetermined spacing by setting the ink hold bag 11 to a printer regardless of change of the operating condition of the ink in the ink hold bag 11, i.e.,

the swelling condition of the ink hold bag 11, so that the center section of the body 12 of an ink hold bag in which the non-contact mold memory IC 14 was formed may serve as the bottom. Therefore, it becomes possible to use, even if it can deliver data correctly in the state of non-contact and the communication link range of non-contact mold memory and the data delivery section is narrow equipment between the non-contact mold memory IC 14 and the data delivery section 26.

[0053] In addition, it is not limited to the location illustrated that the center section of the bottom outside surface of the ink hold bag in an above-mentioned example should just be a location with little change of the appearance configuration of the ink hold bag accompanying the ink consumption in an ink hold bag.

[0054] (Example of modification) A still more nearly above-mentioned operation gestalt can also be changed as follows.

[0055] In said 1st operation gestalt, the arrangement part of the non-contact mold memory IC 14 may be changed into the other end corner of the ink feed hopper 13 side-edge edge in the bottom front face of the ink hold bag 11, the end corner of the ink feed hopper 13 and the opposite side edge, or an other end corner. Moreover, you may prepare in the corner on the front face of a top of the ink hold bag 11.

[0056] Thus, even when constituted, the almost same effectiveness as said operation gestalt can be acquired.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The perspective view showing the printer equipped with the ink hold bag of the 1st operation gestalt.

[Drawing 2] The decomposition perspective view expanding and showing an ink hold bag and its wearing configuration.

[Drawing 3] The perspective view in the condition of carrying out vertical reversal of the ink hold bag of drawing 2 .

[Drawing 4] The block diagram showing the circuitry of the printer of drawing 1 .

[Drawing 5] The perspective view in the condition of carrying out vertical reversal of the ink hold bag of the 2nd operation gestalt.

[Description of Notations]

11 -- Ink hold bag
12 -- Body of an ink hold bag
13 -- Ink feed hopper
14 -- Non-contact mold memory IC
18 -- Body of a printer
19 -- Print head
20 -- Case set section
21 -- Cartridge case
26 -- Data delivery section
30 -- CPU
35 -- Computer
36 -- Display

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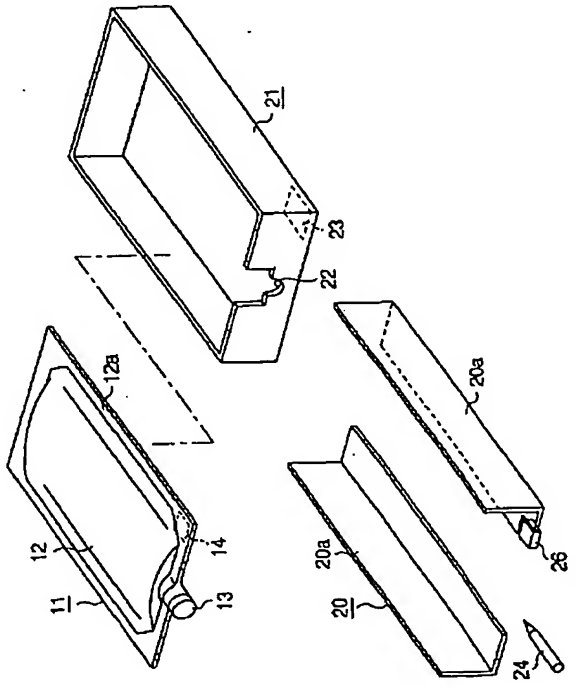
(54)【発明の名称】　インク収容袋及びそれを装着する記録装置

(57)【要約】
【課題】　インク使用量の管理をインク収容袋ごとに行うことができるインク収容袋及びそれを装着する記録装置を提供する。
【解決手段】　印刷用のインクを収容するインク収容袋本体１２を可撓性材料により形成し、ソフトケースとする。インク収容袋本体１２の外表面の隅部に非接触型メモリＩＣ１４を設ける。インク収容袋１１をセットする記録装置のケースセット部２０には、非接触型メモリＩＣ１４との間で、非接触状態にてデータの受け渡しを行うデータ受け渡し部２６を設ける。



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【特許請求の範囲】

【請求項１】　印刷用のインクを収容する可撓性のインク収容袋本体と、外部にインクを供給するインク供給口を備えたインク収容袋において、非接触型メモリＩＣを設けたことを特徴とするインク収容袋。

【請求項２】　前記非接触型メモリＩＣをインク収容袋本体に設けたことを特徴とする請求項１に記載のインク収容袋。

【請求項３】　前記非接触型メモリＩＣをインク収容袋本体の隅部に設けたことを特徴とする請求項２に記載のインク収容袋。

【請求項４】　前記非接触型メモリＩＣをインク収容袋本体の前記隅部の熱溶着部に設けたことを特徴とする請求項３に記載のインク収容袋。

【請求項５】　前記非接触型メモリＩＣをインク収容袋本体の中央部に設けたことを特徴とする請求項２に記載のインク収容袋。

【請求項６】　前記非接触型メモリＩＣをインク収容袋本体の前記インク供給口近傍に設けたことを特徴とする請求項２記載のインク収容袋。

【請求項７】　インクを収容する可撓性のインク収容袋が装着され、そのインク収容袋内のインクにより印刷を行う記録装置において、

前記インク収容袋に設けられた非接触型メモリＩＣとの間で、非接触状態にてデータの受け渡しを行うデータ受け渡し部を設けたことを特徴とする記録装置。

【請求項８】　前記データ受け渡し部は、下向き状態に配置されたインク収容袋本体に設けられた非接触型メモリＩＣとの間でデータの受け渡しを行うように構成されていることを特徴とした請求項７に記載の記録装置。

【請求項９】　前記インク収容袋を収容するカートリッジケースと、このカートリッジケースを収容するケースセット部とを備えたことを特徴とする請求項７に記載の記録装置。

【請求項１０】　前記カートリッジケースには、前記インク収容袋に設けられた非接触型メモリＩＣと装置本体に設けられたデータ受け渡し部との通信を可能にする開口部が設けられていることを特徴とする請求項７に記載の記録装置。

【請求項１１】　前記カートリッジケースには、前記インク収容袋のインク供給口を固定する取り出し口を備え、前記インク収容袋の非接触型メモリＩＣは、前記インク供給口近傍に配設されていることを特徴とする請求項７に記載の記録装置。

【請求項１２】　前記インク収容袋の非接触型メモリＩＣの情報によりインク消費量を判断することを特徴とする請求項７記載の記録装置。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】この発明は、例えばノズルからインク滴を吐出して、記録用紙に印刷を行うインクジェット式のプリンタ及びこの様な印刷機構を含むファクシミリ、複写装置等の記録装置に用いられるインク収容袋、及びそのインク収容袋を装着するようにしたプリンタ等の記録装置に関するものである。

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【０００２】

【従来の技術】この種のプリンタに使用されるインク収容袋としては、内部に収容したインクの消費にあわせて変形可能な可撓性を有するシートを袋状に形成したものが用いられ、そのインク収容袋の外表面に識別マークを付したものが知られている。前記識別マークにはインクの種類、色、製造年月日等の属性データが記憶され、インク収容袋がプリンタに装着された状態で、プリンタに設けられた読み取り部により、識別マークからインクの属性データが読み出されて、そのデータに基づいてプリンタの印刷動作が制御されるようになっている。

【０００３】

【発明が解決しようとする課題】ところが、この従来のインク収容袋においては、インク収容袋の外表面に付された識別マークからインクの属性データが一方的に読み出されて印字動作の制御に使用され、インク収容袋のインク使用量の管理は、プリンタの制御部で行われるようになっている。そして、インク収容袋をプリンタに装着した際には、制御部に記憶されたインク使用量を含むデータがクリアされて、識別マークから新たなデータが読み込まれ、インク使用量の管理も新たに開始されるようになっている。このため、インク収容袋の使用量データがプリンタ側にあって、インク収容袋をインクの使用途中でプリンタから取り外した後、そのインク収容袋を再びプリンタに装着して使用する場合、インク使用量の管理を継続して行うことができないという問題があった。また、前記識別マークには、バーコードが用いられるため、容量が小さく充分な管理データを取り扱うことができない。

【０００４】この発明は、このような従来の技術に存在する問題点に着目してなされたものである。その目的は、インク使用量の管理をインク収容袋ごとに行うことができるとともに、充分な管理データを取り扱うことができるインク収容袋及びそれを装着する記録装置を提供することにある。

【０００５】

【課題を解決するための手段】上記の課題を達成するために、請求項１に記載の発明では、印刷用のインクを収容する可撓性のインク収容袋本体と、外部にインクを供給するインク供給口を備えたインク収容袋において、非接触型メモリＩＣを設けたことを特徴とするものである。

【０００６】請求項２に記載の発明では、請求項１に記載の発明において、前記非接触型メモリＩＣをインク収容袋本体に設けたことを特徴とするものである。

【０００７】従って、この請求項１及び請求項２に記載の発明によれば、非接触型メモリＩＣにインク残量を書き込むことによって、インク使用量の管理をインク収容袋ごとに行うことができる。そして、インク使用量等のインク収容袋管理データをインク収容袋に持たせることができる。よって、インク収容袋をインクの使用途中でプリンタから取り外した後、そのインク収容袋を再びプリンタにセットして使用する場合、インク使用量の管理を継続して行うことができる。

【０００８】また、可撓性のインク収容袋の場合、収容されているインクの消費によって袋の厚みが薄くなる様に外形形状が変化していくが、非接触型のメモリＩＣを設置しているので、非接触メモリＩＣとデータ受け渡し部の通信範囲を適宜設定することで正確なデータの読み出し及び書き込みが可能になる。また、上述の場合には非接触型メモリＩＣを厳密に設けずとも、データの読み出し及び書き込みにほとんど不具合が生じないので、非接触型メモリＩＣを容易に取り付けることができる。また、可撓性の収容袋なので、収容されているインクがすべて使用された際に、そのインク収容袋の嵩を小さくして廃棄することができる。

【０００９】請求項３に記載の発明では、非接触型メモリＩＣをインク収容袋本体の隅部に設けたことを特徴とするものである。

【００１０】従って、この請求項３に記載の発明によれば、可撓性のインク収容袋で、インクの消費に伴う外形変形が少ないインク収容袋本体の隅部に非接触型メモリＩＣを安定的に保持して、プリンタ側のデータ受け渡し部に近接対応させることができる。よって、非接触型メモリＩＣとデータ受け渡し部との間で、データの受け渡しを非接触状態にて正確に行うことができる。

【００１１】請求項４に記載の発明では、メモリＩＣをインク収容袋本体の隅部の熱溶着部に設けたことを特徴とするものである。

【００１２】従って、この請求項４に発明によれば、非接触型メモリＩＣが扁平で、かつインク収容袋本体の他の部分と比較して剛性のある熱溶着部に設けられているため、その非接触型メモリＩＣが妄動することなく、安定保持される。このため、データの受け渡しを確実に行うことができる。

【００１３】請求項５に記載の発明では、前記非接触型メモリＩＣをインク収容袋本体の中央部に設けたことを特徴とするものである。

【００１４】従って、この請求項５に記載の発明によれば、非接触型メモリＩＣを設けたインク収容袋本体の中央部が下側となるように、インク収容袋を記録装置にセットすることにより、インク収容袋内のインクの使用状況に関係なく、つまりインク収容袋の膨らみ状態に関わりなく非接触型メモリＩＣを常にプリンタ側のデータ受け渡し部に近接対応させることができる。よって、非接触型メモリＩＣとデータ受け渡し部との間で、データの受け渡しを非接触状態にて正確に行うことができる。

【００１５】請求項６に記載の発明では、非接触型メモリＩＣをインク収容袋本体のインク供給口近傍に設けたことを特徴とするものである。

【００１６】従って、請求項６に記載の発明によれば、装置本体に固定される供給口近傍に非接触型メモリＩＣが配設されていることにより、より安定保持がされることになり、データの受け渡しを非接触状態にて正確に行うことができる。

【００１７】請求項７に記載の発明では、インクを収容する可撓性のインク収容袋が装着され、そのインク収容袋内のインクにより印刷を行う記録装置において、前記インク収容袋に設けられた非接触型メモリＩＣとの間で、非接触状態にてデータの受け渡しを行うデータ受け渡し部を設けたことを特徴とする。

【００１８】従って、この請求項７に記載の発明によれば、インク収容袋を記録装置にセットして、非接触型メモリＩＣをデータ受け渡し部に近接対応させた状態にて、非接触型メモリＩＣとデータ受け渡し部との間でデータの受け渡しを行って、印刷動作の制御やインク使用量の管理等を有効に行うことができる。

【００１９】請求項８に記載の発明では、請求項７に記載の発明において、前記データ受け渡し部は、下向き状態に配置された非接触型メモリＩＣとの間でデータの受け渡しを行うように構成されていることを特徴とするものである。

【００２０】従って、請求項８に記載の発明によれば、インク収容袋を非接触型メモリＩＣが下向きになるように設置した状態で、非接触型メモリＩＣとデータ受け渡し部との間でデータの受け渡しが行われる。このため、非接触型メモリＩＣにインク収容袋の重量が作用して、非接触型メモリＩＣが安定状態に保持され、その状態の非接触型メモリＩＣとデータ受け渡し部との間でデータの受け渡しが行われる。このため、データの受け渡しを確実に行うことができる。

【００２１】請求項９に記載の発明では、前記インク収容袋を収容するカートリッジケースと、このカートリッジケースを収容するケースセット部とを備えたことを特徴とするものである。

【００２２】従って、インク収容袋をカートリッジケースを介して正確に記録装置本体に装着することができ、非接触型メモリＩＣとデータ受け渡し部とのデータ受け渡しを正確に行うことができる。

【００２３】請求項１０に記載の発明では、前記カートリッジケースには、前記インク収容袋に設けられた非接触型メモリＩＣと装置本体に設けられたデータ受け渡し部との通信を可能にする開口部が設けられていることを特徴とするものである。

【００２４】従って、非接触型メモリＩＣとデータ受け

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渡し部とのデータ受け渡しをカートリッジケースにより遮断することなく正確に行うことが可能になる。また、通信能力が低い装置（非接触型メモリＩＣまたはデータ受け渡し部）であっても採用することができる。

【００２５】請求項１１に記載の発明では、前記カートリッジケースには、前記インク収容袋のインク供給口を固定する取り出し口を備え、前記インク収容袋の非接触型メモリＩＣは、前記インク供給口近傍に配設されていることを特徴とするものである。

【００２６】従って、非接触型メモリＩＣをより安定的に保持することができる。

【００２７】請求項１２に記載の発明では、前記インク収容袋の非接触型メモリＩＣの情報によりインク量を判断することを特徴とするものである。従って、正確なインク量により記録装置が判断をすることが可能になる。

【００２８】

【発明の実施の形態】（第１実施形態）以下に、この発明の一第１実施形態を、図１～図４に基づいて説明する。

【００２９】まず、この実施形態のインク収容袋及びそれを用いる記録装置について説明する。図１～図３に示すように、インク収容袋１１のインク収容袋本体１２は、可撓性を有するシートを袋状に形成したソフトケースよりなり、例えばポリエチレンフィルムにアルミニウムを蒸着してなるガスバリア性を有したラミネートフィルム等のシート材を２枚重ね合わせ、重ね合わせたシート材の外周縁に沿って熱溶着シールを施し、その内部には印刷用のインクが収容されている。インク収容袋本体１２の一端縁には合成樹脂等の硬質材料よりなるインク供給口１３が熱溶着され、このインク供給口１３からインク収容袋本体１２内のインクが取り出されるようになっている。

【００３０】前記インク収容袋本体１２の外周縁における熱溶着部としての熱溶着シール部１２ａ上において、インク収容袋本体１２の下側表面におけるインク供給口１３側端縁の一端隅部の同熱溶着シール部１２ａには、外部から読出し及び書き込み可能な非接触型メモリＩＣ１４が固定されている。この非接触型メモリＩＣ１４には、インク収容袋１１内のインクに関する属性データ、例えばインクの種類、色、製造年月日、製造工場等のデータが記憶されている。さらに、非接触型メモリＩＣ１４には、インク収容袋１１内のインクの既使用量及び残量を書き込むための記憶領域が設けられている。

【００３１】次に、前記インク収容袋１１を装着して使用するプリンタ（記録装置）について説明する。

【００３２】図１及び図２に示すように、プリンタ本体１８には印字ヘッド１９が図示しないプラテンに沿って移動可能に配設されている。プリンタ本体１８の一側前面には複数のケースセット部２０が区画形成され、それらのケースセット部２０には各一対のガイド板２０ａが

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設けられている。そして、各ケースセット部２０にはインク収容袋１１がカートリッジケース２１に収容した状態で、セットされるようになっている。

【００３３】前記カートリッジケース２１はハードケース状に形成されている。カートリッジケース２１の一端面には取出口２２が形成され、カートリッジケース２１内に収容されたインク収容袋１１のインク供給口１３が、この取出口２２から外部に突出されるように取出口２２に固定されている。カートリッジケース２１の取出口２２側の一側底面には、窓部２３が形成されている。そして、カートリッジケース２１内にインク収容袋１１が収容されたとき、そのインク収容袋１１の下側表面の一端隅部に設けられた非接触型メモリＩＣ１４が、この窓部２３から下方へ露出されるようになっている。

【００３４】前記プリンタ本体１８の各ケースセット部２０には供給針２４が対向配置されて、供給チューブ２５を介して印字ヘッド１９に接続されている。そして、インク収容袋１１がカートリッジケース２１内に収容された状態でケースセット部２０にセットされたとき、供給針２４がインク収容袋１１のインク供給口１３を貫通してインク収容袋本体１２内に挿入される。この状態で、印字ヘッド１９の印刷動作に伴い、インク収容袋１１内のインクが供給針２４及び供給チューブ２５を介して印字ヘッド１９に供給されて、記録用紙Ｐ上に印刷が行われるようになっている。

【００３５】前記各ケースセット部２０の一方のガイド板２０ａの端部には、データ受け渡し部２６が配設されている。そして、インク収容袋１１がカートリッジケース２１内に収容された状態でケースセット部２０にセットされたとき、インク収容袋１１のインク供給口近傍の一端隅部に配設された非接触型メモリＩＣ１４が窓部２３を介してデータ受け渡し部２６に対向配置される。この状態で、データ受け渡し部２６により、非接触型メモリＩＣ１４に対して、インク収容袋１１内のインクの属性データ及び既使用量や残量のデータに関する読み取り並びに書き込みが非接触状態にて行われるようになっている。

【００３６】次に、前記のような構造よりなるプリンタの回路構成について説明する。図４に示すように、プリンタ本体１８にはプリンタ全体の動作を制御する中央処理装置（ＣＰＵ）３０が設けられ、そのＣＰＵ３０にはプログラムを格納したリードオンリメモリ（ＲＯＭ）３１及びワーキングデータ等を格納するランダムアクセスメモリ（ＲＡＭ）３２が接続されている。ＣＰＵ３０には前記印字ヘッド１９を含む印字機構３３が接続され、この印字機構３３に作動信号が出力されるようになっている。また、ＣＰＵ３０にはデータ受け渡し部２６が接続され、このデータ受け渡し部２６に対してインクの属性データ等の入出力が行われるようになっている。

【００３７】さらに、前記プリンタ本体１８内のＣＰＵ

３０には、インターフェース３４を介して外部のコンピュータ３５が接続され、このコンピュータ３５との間で印刷データや警告表示信号等の受け渡しが行われるようになっている。コンピュータ３５にはディスプレイ装置等の表示部３６が接続され、ＣＰＵ３０からコンピュータ３５に警告表示信号が出力されたとき、この表示部３６に警告メッセージが表示されるようになっている。コンピュータ３５にはキーボード３７が接続され、このキーボード３７から種々のデータが入力されるようになっている。

【００３８】次に、前記のように構成されたプリンタの動作を説明する。

【００３９】さて、このプリンタにインク収容袋１１を装着する場合には、インク収容袋１１をカートリッジケース２１内に収容した状態で、プリンタ本体１８のケースセット部２０にセットする。すると、供給針２４がインク収容袋１１のインク供給口１３に貫通して、インク収容袋本体１２内に挿入配置されるとともに、インク収容袋１１の下側表面の非接触型メモリＩＣ１４が窓部２３を介して、プリンタ本体１８側のデータ受け渡し部２６に対向配置される。

【００４０】この状態で、データ受け渡し部２６により、非接触型メモリＩＣ１４からインク収容袋１１内のインクの属性データ等が読み出されて、ＣＰＵ３０を介してＲＡＭ３２に書き込まれる。そして、このインクの属性データ等に基づいて、印字ヘッド１９を含む印字機構３３が印字動作されるとともに、インク収容袋１１内のインクが供給針２４及び供給チューブ２５を介して印字ヘッド１９に供給されて、記録用紙Ｐに印刷が行われる。

【００４１】この印字動作時には、ＣＰＵ３０の制御に基づいてデータ受け渡し部２６により、ＲＡＭ３２にインクの既使用量及び残量のデータが書き込まれる。そして、定期的あるいは所定の印字動作タイミングでそのデータが非接触型メモリＩＣ１４に転送される。そして、非接触型メモリＩＣ１４に書き込まれたインクの積算使用量が所定値に達したときには、ＣＰＵ３０からインク収容袋１１の交換を促す警告表示信号が出力されて、表示部３６に例えば「インク収容袋内のインクがなくなりました。新しいものと交換して下さい」等の警告メッセージが表示される。

【００４２】また、インク収容袋１１内のインクの使用途中で印字動作が終了した場合でも、そのインク収容袋１１上の非接触型メモリＩＣ１４には、それまでの印字動作で消費されたインクの既使用量及び残量のデータが書き込まれている。よって、この状態でインク収容袋１１をプリンタから取り外して、他のプリンタに再びセットして使用した場合でも、これらのデータをプリンタに転送することにより、インク使用量の管理が継続して行われることになる。

【００４３】従って、この実施形態によれば、以下のような効果を得ることができる。

【００４４】（１）このインク収容袋１１においては、印刷用のインクを収容する可撓性のインク収容袋１１の外表面に、非接触型メモリＩＣ１４が設けられている。このため、非接触型メモリＩＣ１４にインク残量を書き込むことによって、インク使用量の管理をインク収容袋１１ごとに行うことができる。よって、インク収容袋１１をインクの使用途中でプリンタから取り外した後、そのインク収容袋１１を再びプリンタにセットして使用する場合、インク使用量の管理を継続して行うことができる。また、可撓性のインク収容袋の場合、収容されているインクの消費によって袋全体の厚みが薄くなる様に外形形状が変化していくが、非接触型のメモリＩＣを設置しているので、非接触型メモリＩＣとデータ受け渡し部の通信範囲を適宜設定することで正確なデータの読み出し及び書き込みが可能になる。また、上述の場合には非接触型メモリＩＣを厳密に設けずとも、データの読み出し及び書き込みにほとんど不具合が生じないので、非接触型メモリＩＣを容易に取り付けることができる。また、可撓性の収容袋なので、収容されているインクがすべて使用された際に、そのインク収容袋の嵩を小さくして廃棄することができる。

【００４５】（２）このインク収容袋１１においては、前記非接触型メモリＩＣ１４がインク収容袋本体１２の隅部に設けられている。このため、可撓性の袋の隅部においてはインク消費による外形形状変化が少ないため、非接触型メモリＩＣとデータ受け渡し部との通信範囲が大きくない装置を用いることが可能になる。また、インク収容袋本体１２の外周縁に熱溶着シール部１２ａが形成されていて、インク収容袋本体１２の隅部がインク収容袋本体の他の部分よりも硬質状態になって、剛性が高くなっていることから、この隅部に設けられた非接触型メモリＩＣ１４を安定保持して常にプリンタ側のデータ受け渡し部２６に近接対応させることができる。よって、非接触型メモリＩＣ１４がデータ受け渡し部２６に対してほぼ安定した位置で対向できるので、データの受け渡しを非接触状態にてより正確に行うことができる。

【００４６】（３）このインク収容袋１１を装着するようにしたプリンタにおいては、インクを収容するインク収容袋１１をセットして、そのインク収容袋１１内のインクにより印刷を行うように構成されている。そして、インク収容袋１１の外表面に設けられた非接触型メモリＩＣ１４との間で、非接触状態にてデータの受け渡しを行うデータ受け渡し部２６が設けられている。このため、インク収容袋１１をプリンタにセットして、非接触型メモリＩＣ１４をデータ受け渡し部２６に近接対応させた状態にて、非接触型メモリＩＣ１４とデータ受け渡し部２６との間でデータの受け渡しを行って、印刷動作の制御やインク使用量の管理等を有効に行うことができ

る。

【００４７】（４）このプリンタにおいては、データ受け渡し部２６が、下向き状態に配置された非接触型メモリＩＣ１４との間でデータの受け渡しを行うように構成されている。このため、インク収容袋１１を非接触型メモリＩＣ１４が下向きになるように設置した状態で、非接触型メモリＩＣ１４とデータ受け渡し部２６との間でデータの受け渡しが行われる。このため、非接触型メモリＩＣ１４にインク収容袋１１の重量が作用して、非接触型メモリＩＣ１４が安定状態に保持され、その状態の非接触型メモリＩＣ１４とデータ受け渡し部との間でデータの受け渡しが行われる。このため、データの受け渡しを確実に行うことができる。

【００４８】（第２実施形態）次に、この発明の第２実施形態を、前記第１実施形態と異なる部分を中心に説明する。

【００４９】さて、この第２実施形態においては、図５に示すように、インク収容袋本体１２の下側表面の中央部に非接触型メモリＩＣ１４が貼着により設けられている。

【００５０】一方、プリンタのデータ受け渡し部２６は、カートリッジケース２１の中央部に設けられている。そして、インク収容袋１１がカートリッジケース２１内に収容した状態で、プリンタのケースセット部２０にセットされたとき、この非接触型メモリＩＣ１４がケースセット部２０の両ガイド板２０ａ間に配設されたデータ受け渡し部２６に対向配置されるようになっている。

【００５１】従って、この第２実施形態によれば、前記第１実施形態における（１）、（３）、（４）に記載の効果に加えて、以下のような効果を得ることができる。

【００５２】（５）このインク収容袋１１においては、非接触型メモリＩＣ１４がインク収容袋本体１２の外表面の中央部に設けられている。このため、非接触型メモリＩＣ１４が設けられたインク収容袋本体１２の中央部が下側となるように、インク収容袋１１をプリンタにセットすることにより、インク収容袋１１内のインクの使用状況、つまりインク収容袋１１の膨らみ具合の変化に関係なく、非接触型メモリＩＣ１４を常にプリンタ側のデータ受け渡し部２６に所定の間隔で近接対応させることができる。よって、非接触型メモリＩＣ１４とデータ受け渡し部２６との間で、データの受け渡しを非接触状態にて正確に行うことができ、また非接触型メモリ及びデータ受け渡し部の通信範囲が狭い装置であっても利用することが可能になる。

【００５３】なお、上述の実施例におけるインク収容袋の下側外表面の中央部とは、インク収容袋内のインク消費に伴うインク収容袋の外形形状の変化が少ない場所であれば良く図示した位置に限定されるものではない。

【００５４】（変更例）なお、上述の実施形態は、次のように変更することも可能である。

【００５５】前記第１実施形態において、非接触型メモリＩＣ１４の配設箇所を、インク収容袋１１の下側表面におけるインク供給口１３側端縁の他端隅部、インク供給口１３と反対側端縁の一端隅部、または他端隅部に変更してもよい。また、インク収容袋１１の上側表面の隅部に設けてもよい。

【００５６】このように構成した場合でも、前記実施形態とほぼ同様の効果を得ることができる。

【００５７】

【発明の効果】以上、詳述したように、インクの使用量の管理データをインク収容袋ごとに行うことができるとともに、その管理データをインク収容袋に持たせて、充分な管理データを取り扱うことができる。

【図面の簡単な説明】

【図１】第１実施形態のインク収容袋を装着したプリンタを示す斜視図。

【図２】インク収容袋及びその装着構成を拡大して示す分解斜視図。

【図３】図２のインク収容袋を上下反転させた状態の斜視図。

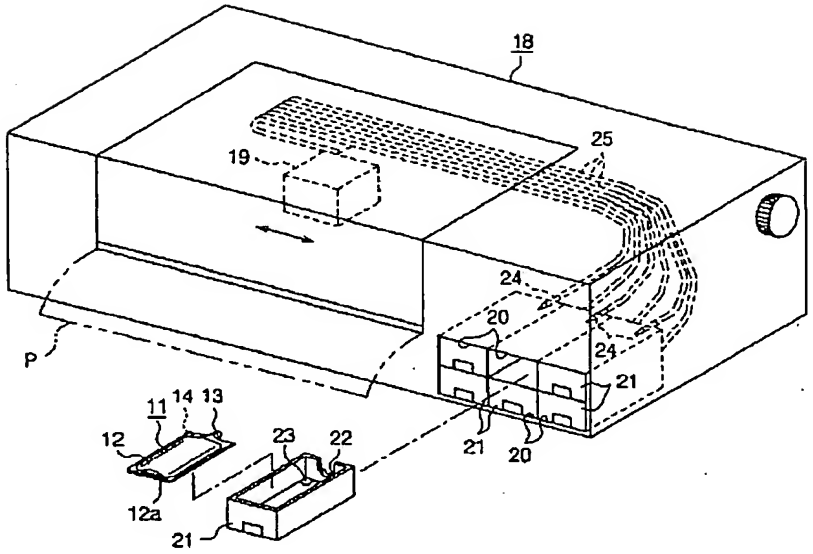
【図４】図１のプリンタの回路構成を示すブロック図。

【図５】第２実施形態のインク収容袋を上下反転させた状態の斜視図。

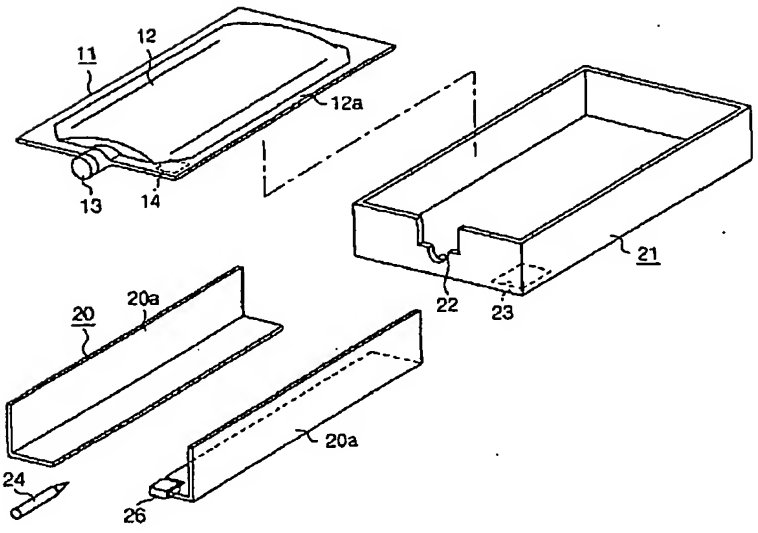
【符号の説明】

１１…インク収容袋
１２…インク収容袋本体
１３…インク供給口
１４…非接触型メモリＩＣ
１８…プリンタ本体
１９…印字ヘッド
２０…ケースセット部
２１…カートリッジケース
２６…データ受け渡し部
３０…ＣＰＵ
３５…コンピュータ
３６…表示部

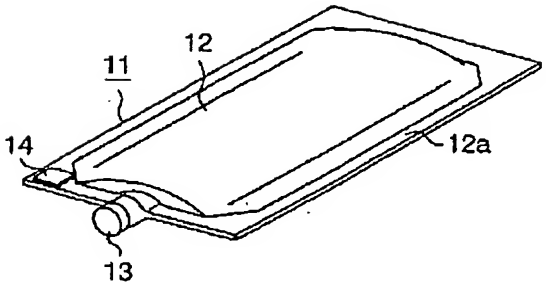
【図１】


18
19
25
24
20
24
21
P
11
14
13
12
23
22
21
20
12a
21

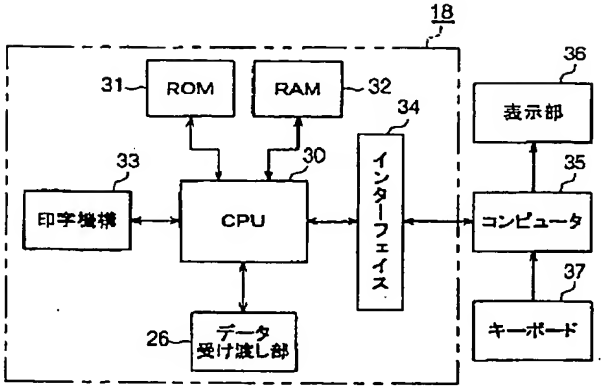
【図２】


11
12
12a
13
14
21
22
23
20
20a
20a
24
26

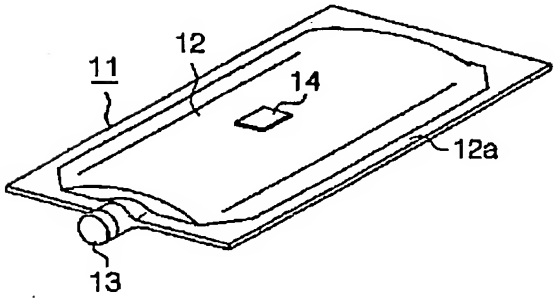
【図３】


11
12
14
12a
13

【図４】


18
31
ROM
RAM
32
34
36
表示部
33
30
35
印字機構
CPU
インターフェイス
コンピュータ
37
キーボード
26
データ
受け渡し部

【図５】


11
12
14
12a
13